

Modeling of human adenovirus 53 hexon protein

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ABSTRACT

Modeling of human adenovirus 53 hexon protein was done and models could be successfully made. Valuable structural details could be elucidated.

Key words: Modeling, human, adenovirus 53, hexon, protein

INTRODUCTION

Adenoviruses cause several infections in human and thus are very important pathogen. The hexon protein of adenoviruses plays important role in development of immune responses and thus it has been studied in detail. In this context study of structural details of hexon protein of adenovirus 53 is very important to know its structure and binding sites.

MATERIALS AND METHODS

Protein

Human adenovirus 53 hexon gene for hexon, complete cds, strain: 53/FS161/Fukui/2004 GenBank: AB568098.1 linear 35116 bp DNA and amino acid sequence was used for modelling.

Modelling software

<https://swissmodel.expasy.org> was reached to model the protein.

RESULTS AND DISCUSSION

Project summary

MCLTARERAKMATPSMMPQWAYMHIAGQDASEYLSPLGVQFARATDITYFSLGNKFRNPTVAPTHDVTDRSQRLTLRFV	1
PVDREDDTTYSYKARFTLAVGDNRLDMASTYFDIRGVLDRG	2
	0
PSFKPYSGTAYNSLAPKGAPNSSQWAQKKTGEDNQTETRTFGVAAMGGILIDKNGLQIGTDETKPDNKEIYADKTFQPEPQ	2
KGEENWQDGDVFGGRITIKKETKMKPCYGSFARPTNEKG	4
	0
GQAKFKTNAEGQPTTELDIDLNFFDINGGAGDNEFNPDVMY AENMNLETPDTHVYKPGTSDDSSEANLAQQSMPNRPN	3
YIGFRDNFVGLMYNSTGNMGVLAGQASQLNAVVDLQDRN	6
	0
TELSYQLLLDSLGDRTYFMSWNSAVDSYDPDVRIENHGVDELPNYCFPLDGTGTNSTYQGVKETAAQNGWEKDPNVA	4
AQNQLCKGNIYAMEINLQANLWKSFLYSNVALYLPDSYKY	8
	0
TPANVTLPANTNTYEYMNGRVVAPSLVDAYINIGARWSLDPMDNVNPFNHHRNAGLRYRSMLLGNGRYVPFHIQVPQKFF	6
AIKNLLLLPGSYTYEWNFRKDVNMILQSSLGNDLRVDGAS	0
	0
VRFDSVNLYATFFPMAHNTASTLEAMLRNDTNDQSFNDYLSAANMLYPIPAKATNPISIPSRNWAAFRGWSFTRLKTKET	7
PSLGSGLFDYPFVYSGSIPYLDGTFYLNHTFKKVSIMFDS	2
	0

SVSWPGNDRLLTPNEFEIKRSVDGEGYNVAQCNMTKDWFLVQMLSHYNIGYQGFHVPEGYKDRMYSFFRNFPMSRQVV 8
NEINYKDYKAVTLFPQHNSGFTGYLAPTMRQGQPYANFP 4
0

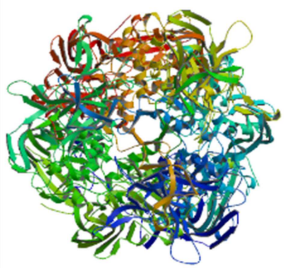
YPLIGSTAVPSVTQKKFLCDRVMWRIPFSSNFMSMGALTDLGQNMLYANSAHALDMTFEVDPMDEPTLLYLLFEVFDVVR 9
VHQPHRGVIEAVYLRTFSAAGNATT 4
5

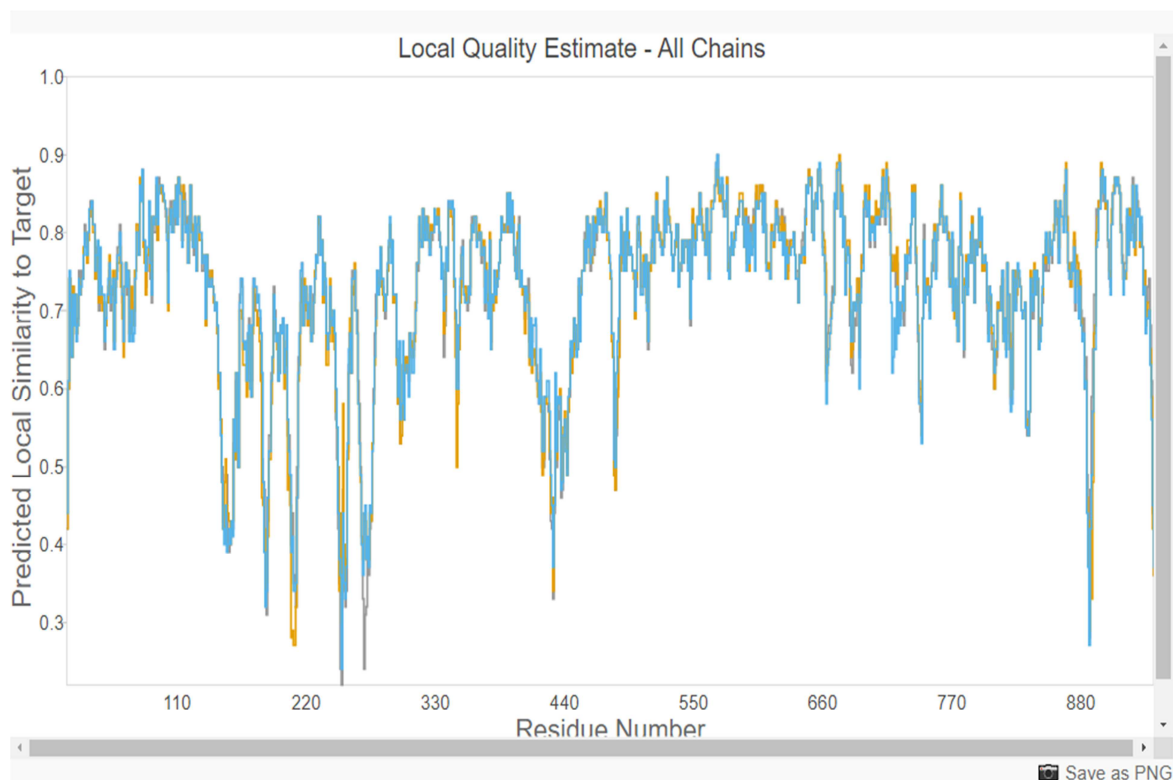
Template Results

A total of 272 templates were found to match the target sequence. This list was filtered by a heuristic down to 38. The top templates are:

Template	Sequence Identity	Biounit Oligo State	Description
2obe.1	85.13	homo-trimer	Hexon protein Crystal Structure of Chimpanzee Adenovirus (Type 68/Simian 25) Major Coat Protein Hexon
2obe.1	85.45	homo-trimer	Hexon protein Crystal Structure of Chimpanzee Adenovirus (Type 68/Simian 25) Major Coat Protein Hexon
1p2z.1	79.83	homo-trimer	Hexon protein Refinement of Adenovirus Type 2 Hexon with CNS
1p2z.1	79.18	homo-trimer	Hexon protein Refinement of Adenovirus Type 2 Hexon with CNS
6b1t.1	79.74	hetero-25-mer	Hexon protein Improved cryoEM structure of human adenovirus type 5 with atomic details of minor proteins VI and VII

Model Results

	Id	Template	GMQE	QMEANDisCo	Global	Oligo State	Ligands
	01	2obe.1.A	0.76	± 0.05		homo-trimer	17 x 2HP



It may be seen that valuable structural model of human adenovirus 53 hexon protein could be constructed.

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